

Quarterly Report and Outlook

Informe Trimestral y Pronóstico en línea

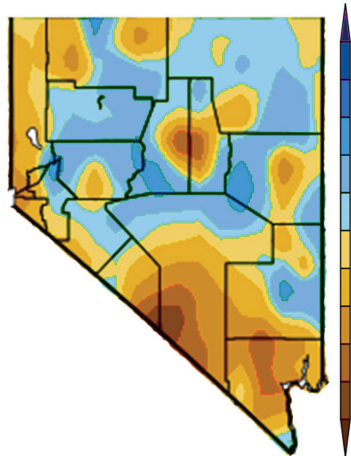
www.unr.edu/climate/climate-summary

October - December 2018

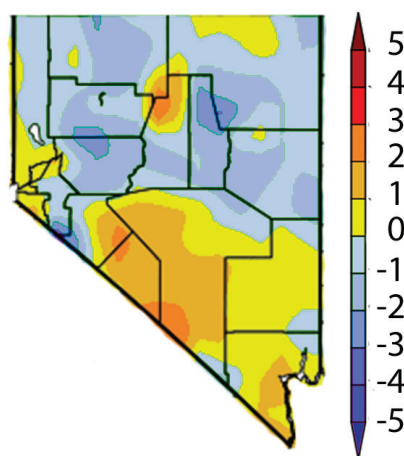
Notable Weather and Climate in Nevada

October - December Climate Summary

Precipitation Percent of Normal



Temperature Difference from Normal



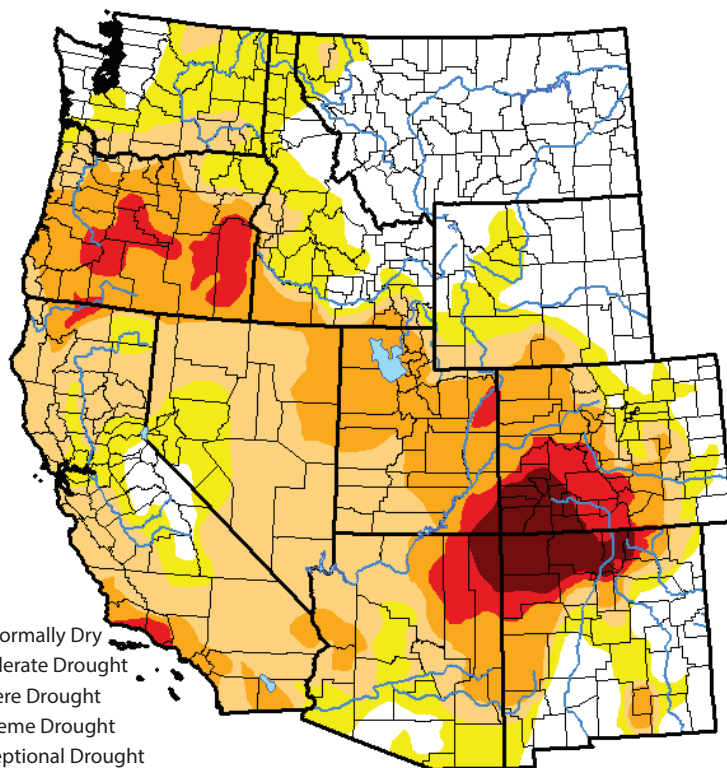
<http://www.hprcc.unl.edu/maps.php?map=ACISClimateMaps#>

Different parts of Nevada experienced very different autumns this year. From Esmerelda County south, the fall was generally warm and dry. Most, but not all, of northern Nevada experienced a cool, wet autumn. October started off very wet over parts of southern Nevada, but early fall precipitation was not plentiful in the northwest. Much of the state dried out in November, barring a few wet spots. In December, northwestern Nevada made up for the dry start to the season, while the south dried out further. Northeastern Nevada was cold! The Elko Airport had overnight lows in the single digits by Veteran's Day and a low of 1°F around New Year's. Still, not as bad as Christmas 1924, when the mercury hit -41°F in Elko.

January 1 Drought Monitor

The water year starts in October, and we typically assess how much water the winter has brought on April 1. We're just about at the mid-point of the winter, so it's a good time to evaluate where we stand, drought-wise, in Nevada and in the mountains across the West that supply Nevada's water.

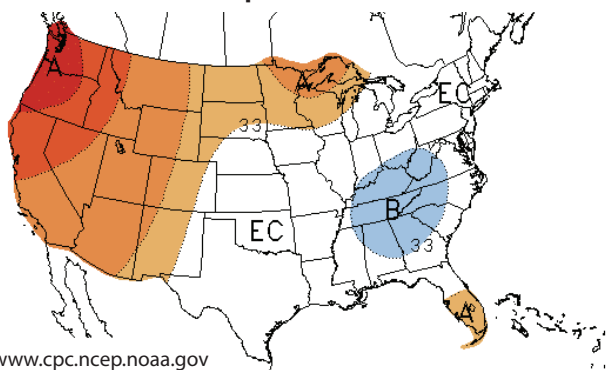
Since the beginning of October, there has been a slight increase in drought coverage across Nevada, from 94 to 99%, and many parts of the state shifted from Abnormally Dry (D0) to Moderate Drought (D2). More of the Sierra Nevada shifted into drought, but the central and northern Sierra are not in particularly bad shape. Drought has been developing in the Upper and Lower parts of the Colorado Basin since early 2018, reaching a peak in summer and fall of this past year. In recent months, however, above average rainfall and lower than normal temperatures in parts of the basin have started to ameliorate the drought. The area in Severe Drought (D2) through Exceptional Drought (D4) shrank, and some stations in Utah and northern Colorado had near or above normal snowpack.



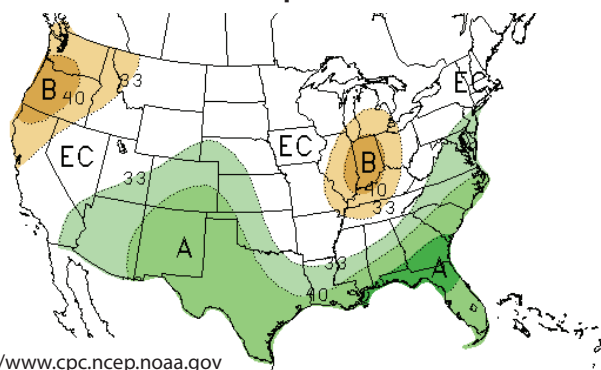
<http://droughtmonitor.unl.edu>

Outlook for January - March

Temperature



Precipitation



All fall we've been watching the glimmers of an El Niño event building in the tropical Pacific Ocean. Across southern Nevada, Arizona and New Mexico, people started hoping for a wet winter and maybe even good skiing in the southern Sierra as a result. But we're still waiting. Sea-surface temperatures across the tropical Pacific from South America to the dateline are 0.5° to $>1^{\circ}\text{C}$ (0.9° to $>1.8^{\circ}\text{F}$) warmer than normal. Water below the surface is even warmer than normal. That's a big deal. Normally, during an El Niño event, the trade winds would start to weaken, and the heaviest bands of tropical storms would shift toward South America in response to the warmer ocean temperatures. But, this year, the atmosphere just can't seem to take a hint. So, we're not technically in an El Niño, but there is still a better than 50% chance that the atmosphere will catch on, and we will shift into El Niño during the later part of the winter or the spring.

In-depth

When should I start to worry about how much rain or snow we have (or haven't) gotten?

After several years of drought, I think we all get a little nervous when October comes and goes without a good storm. Bare, dry mountains during the winter holidays are, well, just not very wintry. Skiers and snowboarders are certainly justified in their frustration when that happens. But should you start to worry about the water supply if the fall is dry?

At one level, that's a simple question. If the water year starts off drier than normal, the winter or spring will need to be wetter than normal to make up the difference, so the drier the autumn is, the lower the odds that we'll reach summer having had the usual amount of rain and snow. But, there are real differences between average precipitation, which increase smoothly, and how precipitation accumulates in any given year. The pattern and timing of storms varies from year to year. As you can see on the plots to the right, wet years can start wet, like 2016-2017 in Reno or 1983-1984 in Elko, or the can start and stay dryish until February or early March (around water-year day 150), like 1991-1992 in Las Vegas or 2017-2018 in Reno.

There are other complications, as well. Is a dry winter or spring likely to follow a dry fall? Do dry years follow wet years? We'll tackle those questions in the coming months!

